

Light efficiency:

101 Lumen/Watt

Light quality:

CRI: 0,0

Color temperature:

0 K

Output: 318 lm

Peak: 7128 cd

Power: 3,2 W

PF: 1,0



Product name:

F L-S O - 2-4 C -1 0 0-R-LSST-RS

Item number:

F L / S O - 2 / 4 C / 1 0 0 / R / LSST/RS

Date and time:

02.04.2019 15:58:00

Description:

Toleranzen:

Lumen +/-4%

Candela +/-2,5%

Colour Temp +/-35 Grad K

CRI +/-0,7

Angular Resolution 1 Grad step

Last Calibration 06.06.2018

Pruefer:

Mourad Benzineb

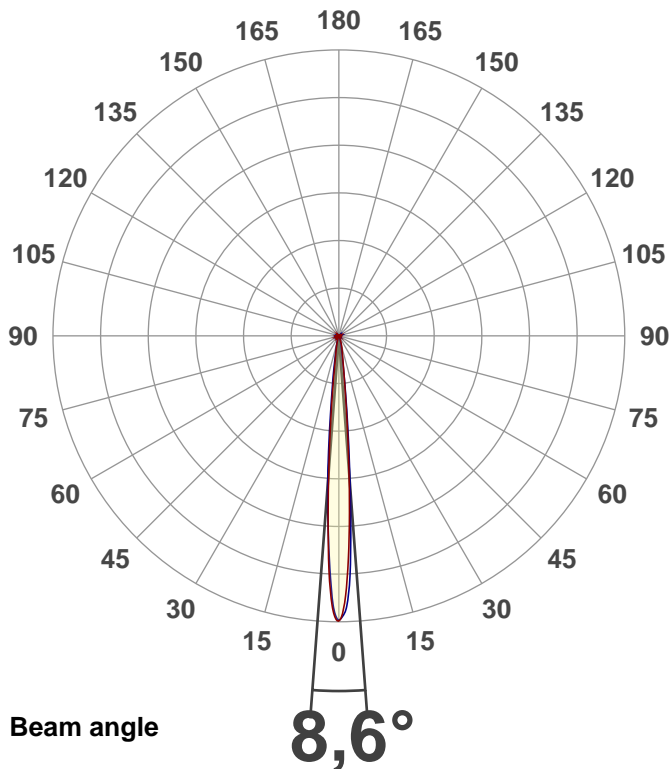
Master of Engineering

Pruefort:

Lichtlabor

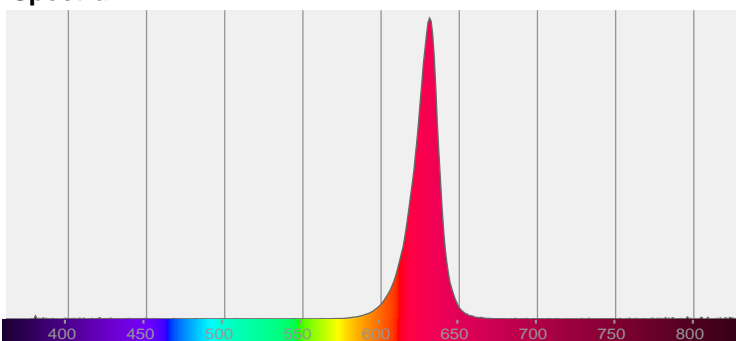
Gaustasse13-15

55411 Bingen am Rhein

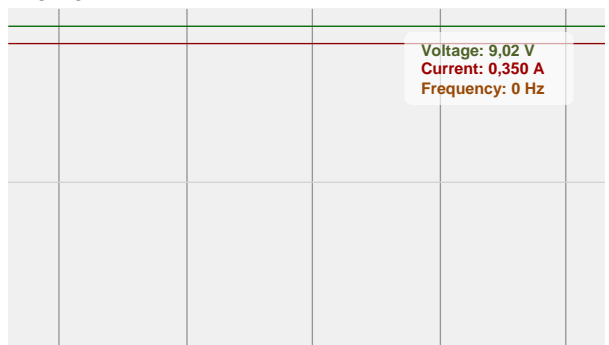


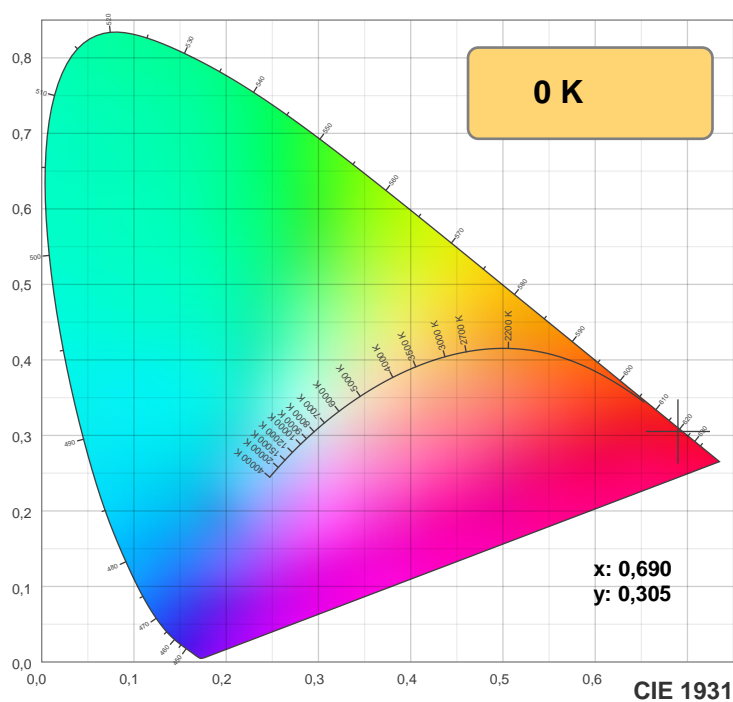
CIE 1931
x: 0,690
y: 0,305

Spectra

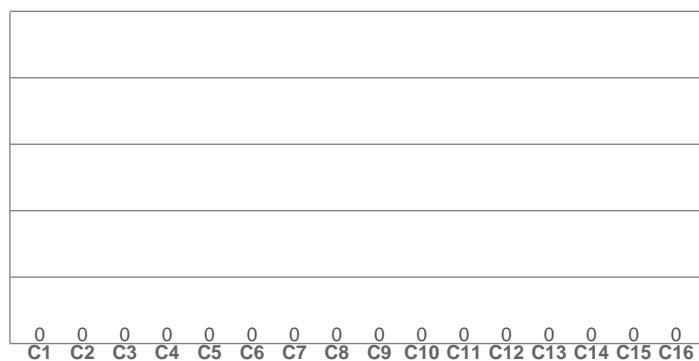


Power





TM30: 0,0



CRI R values, only R1-R8 are used to calculate final CRI value

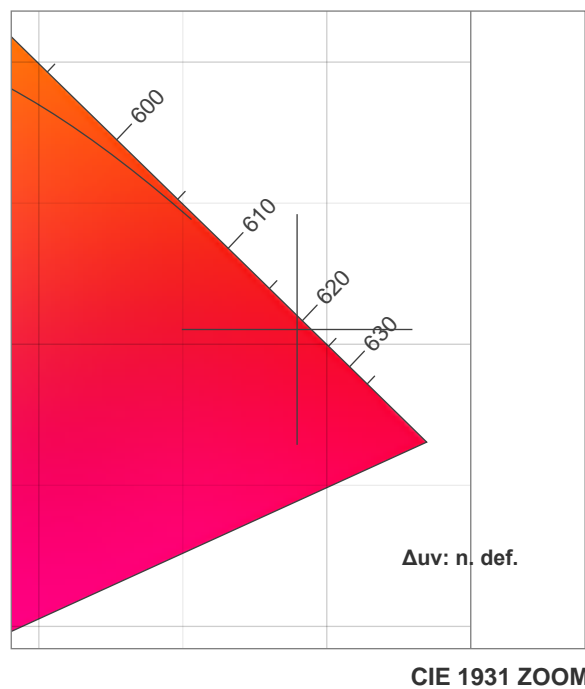
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

TM30 C values, 16 binned values out of total of 99 C values

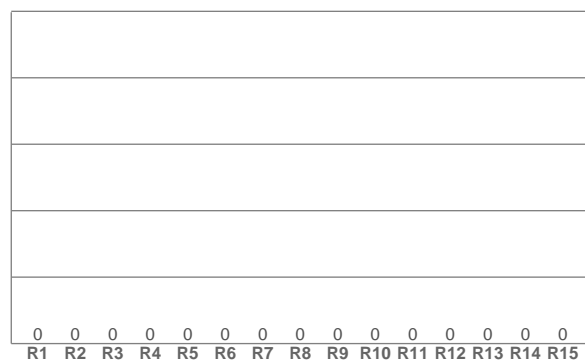
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0

CQS Q values

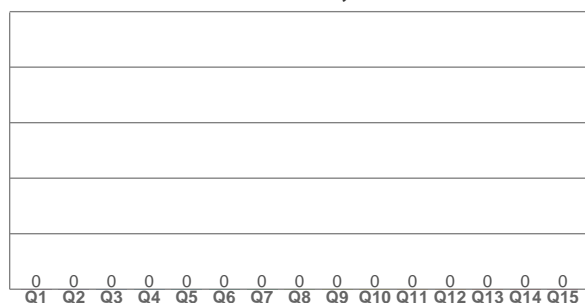
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0



CRI: 0,0 (R1-R8)



CQS: 0,0



Color parameters

Color temperature	Color rendering index	Red component	Color fidelity	Color gamut	Color quality scale	Color coordinate cie 1931	Color coordinate cie 1931	Color coordinate	Color coordinate	Color deviation from black body
CCT	CRI	CRI R9	TM30 Rf	TM30 Rg	CQS	x	y	u	v	Δuv
0 K	0,0	0,0	0,0	0,0	0,0	0,690	0,305	0,522	0,347	n. def.

TM30 details

Rf 0,0

Fidelity index Rf

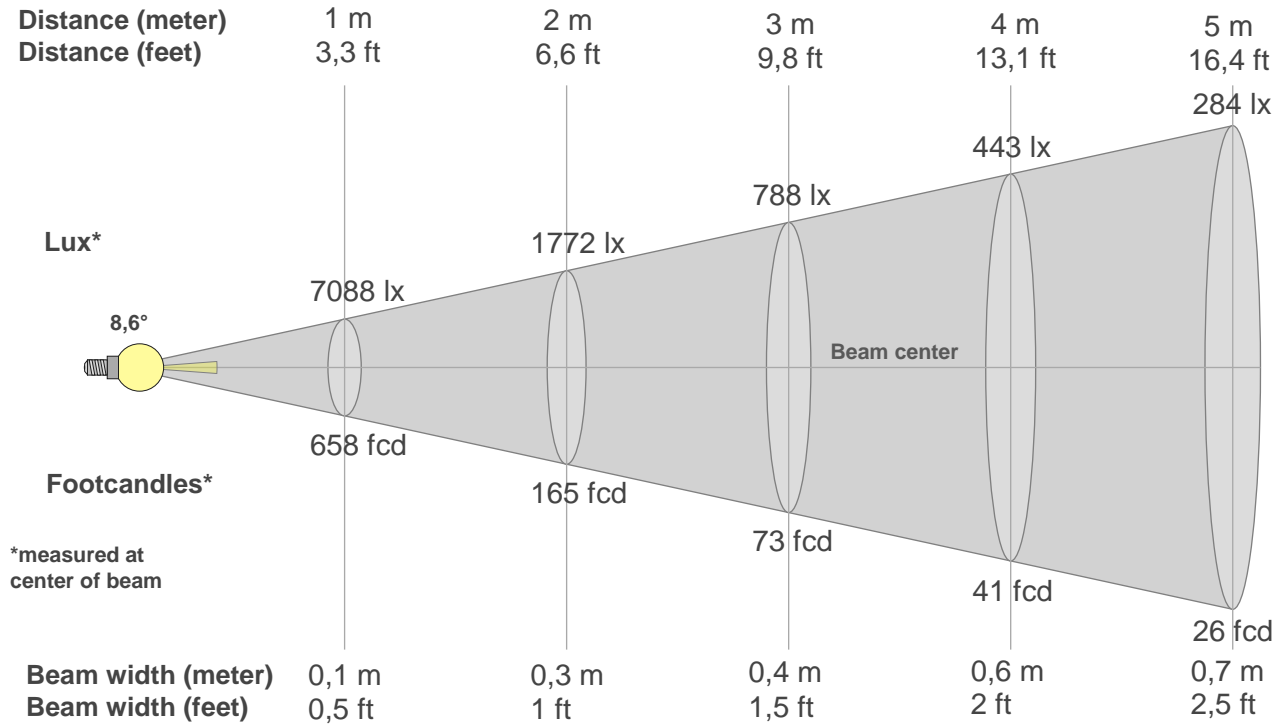
Rg 0,0

Gammut index Rg

Hue Bin	R _f	Graphic shifts (%)	
		Chroma	Hue
1	0	0%	0%
2	0	0%	0%
3	0	0%	0%
4	0	0%	0%
5	0	0%	0%
6	0	0%	0%
7	0	0%	0%
8	0	0%	0%
9	0	0%	0%
10	0	0%	0%
11	0	0%	0%
12	0	0%	0%
13	0	0%	0%
14	0	0%	0%
15	0	0%	0%
16	0	0%	0%



Beam details



Beam intensities from 1-20m

1m	2m	3m	4m	5m	6m	7m	8m	9m	10m	11m	12m	13m	14m	15m	16m	17m	18m	19m	20m
3,3ft	6,6ft	9,8ft	13,1ft	16,4ft	19,7ft	23ft	26,2ft	29,5ft	32,8ft	36,1ft	39,4ft	42,7ft	45,9ft	49,2ft	52,5ft	55,8ft	59,1ft	62,3ft	65,6ft
7088lx	1772lx	788lx	443lx	284lx	197lx	145lx	111lx	88lx	71lx	59lx	49lx	42lx	36lx	32lx	28lx	25lx	22lx	20lx	18lx
658,5fcd	164,6fcd	73,2fcd	41,2fcd	26,3fcd	18,3fcd	13,4fcd	10,3fcd	8,1fcd	6,6fcd	5,4fcd	4,6fcd	3,9fcd	3,4fcd	2,9fcd	2,6fcd	2,3fcd	2fcd	1,8fcd	1,6fcd

Intensities in 0° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
7088	6782	6017	4941	3738	2617	1760	1215	890	685	558	469	404	350	310	271	235	194	160	131
100%	96%	85%	70%	53%	37%	25%	17%	13%	10%	8%	7%	6%	5%	4%	4%	3%	3%	2%	2%

Intensities in 90° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
7088	6960	6529	5565	4208	2937	1964	1281	844	593	451	364	302	253	213	173	141	119	101	82
100%	98%	92%	79%	59%	41%	28%	18%	12%	8%	6%	5%	4%	4%	3%	2%	2%	2%	1%	1%

Intensities in 180° c-plane

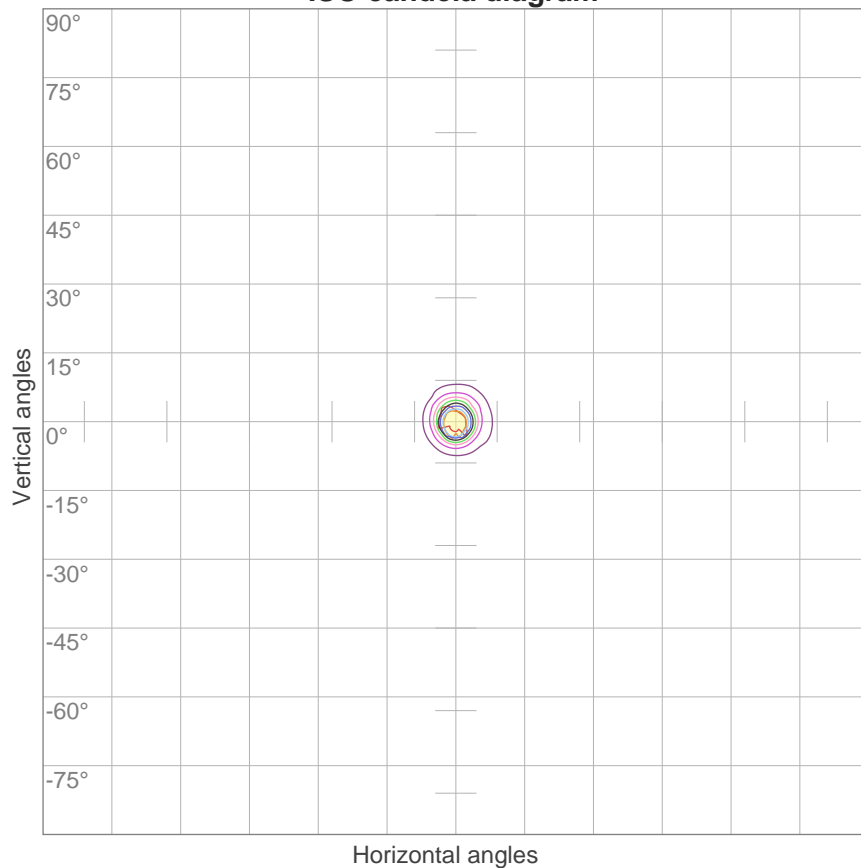
0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
7088	6921	6254	5086	3751	2618	1742	1104	727	538	433	352	293	244	195	157	128	108	90	74
100%	98%	88%	72%	53%	37%	25%	16%	10%	8%	6%	5%	4%	3%	3%	2%	2%	2%	1%	1%

Intensities in 270° c-plane

0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°	12°	13°	14°	15°	16°	17°	18°	19°
7088	6826	6029	5011	4031	3011	2074	1425	1043	723	517	398	322	268	222	185	158	132	109	90
100%	96%	85%	71%	57%	42%	29%	20%	15%	10%	7%	6%	5%	4%	3%	3%	2%	2%	2%	1%

Beam angle 50%	Field angle 10%	Cutoff angle 2,5%	Intensity ratio in 120° cone	Intensity ratio in 90° cone
8,6°	17,4°	32,3°	93,1%	89,3%

ISO candela diagram



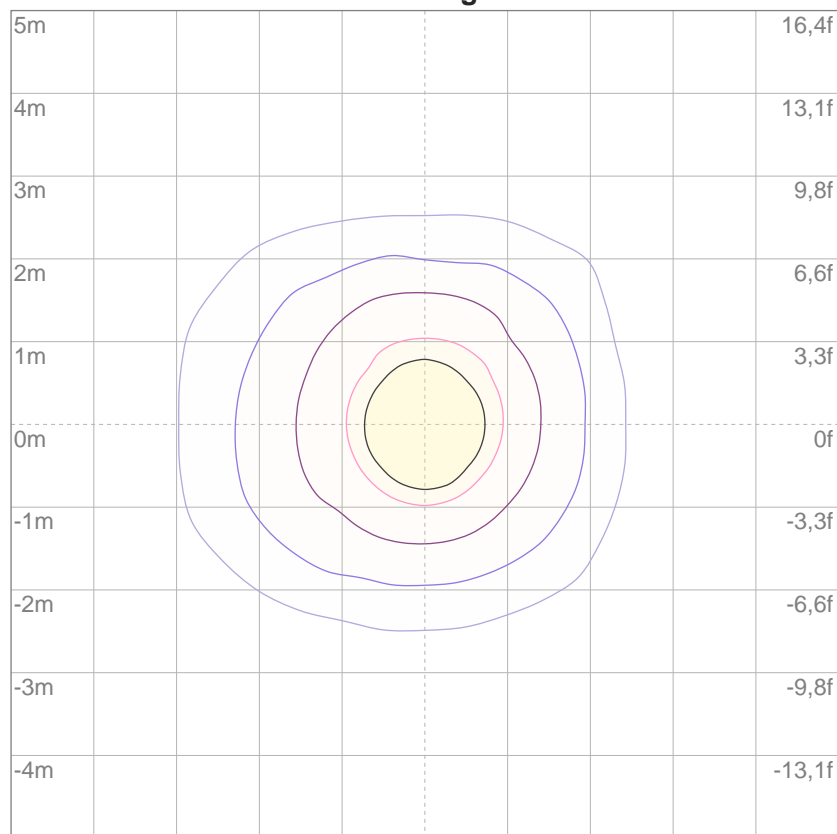
10%	709 cd
20%	1418 cd
30%	2126 cd
40%	2835 cd
50%	3544 cd
60%	4253 cd
70%	4962 cd
80%	5670 cd
90%	6379 cd

Conditions:

Number of c-planes: 16

Candela at center: 7088 cd

ISO lux diagram



3%	2,13 lx
5%	3,54 lx
10%	7,09 lx
30%	21,3 lx
50%	35,4 lx

Conditions:

Number of c-planes: 16

Lux at center: 70,9 lx

*Lux distribution on a surface
when lamp is mounted at 10
meters from the surface.*

Glare Evaluation According to UGR

p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room size X Y		Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	8,7	9,5	8,9	9,7	9,9	8,6	9,4	8,9	9,6	9,8
	3H	11,3	12,0	11,6	12,2	12,5	11,0	11,8	11,3	12,0	12,2
	4H	12,8	13,4	13,1	13,7	14,0	12,6	13,2	12,9	13,5	13,8
	6H	14,3	15,0	14,7	15,2	15,5	14,0	14,6	14,3	14,9	15,2
	8H	15,6	16,2	15,9	16,5	16,8	15,2	15,9	15,6	16,1	16,5
	12H	16,6	17,2	16,9	17,5	17,8	16,6	17,1	16,9	17,5	17,8
4H	2H	9,8	10,5	10,1	10,7	11,0	9,7	10,4	10,0	10,7	10,9
	3H	12,6	13,2	12,9	13,5	13,8	12,4	13,0	12,8	13,3	13,6
	4H	14,2	14,7	14,5	15,0	15,4	14,0	14,5	14,4	14,9	15,2
	6H	15,9	16,4	16,3	16,7	17,1	15,6	16,1	16,0	16,4	16,8
	8H	17,3	17,7	17,7	18,1	18,5	17,0	17,4	17,4	17,8	18,2
	12H	18,4	18,8	18,8	19,2	19,6	18,4	18,7	18,8	19,1	19,6
8H	4H	14,9	15,3	15,3	15,7	16,1	14,8	15,1	15,2	15,5	15,9
	6H	17,0	17,3	17,4	17,7	18,2	16,8	17,1	17,2	17,5	18,0
	8H	18,5	18,7	19,0	19,2	19,7	18,3	18,5	18,7	19,0	19,4
	12H	19,9	20,1	20,3	20,6	21,0	19,8	20,0	20,3	20,5	21,0
12H	4H	15,1	15,5	15,5	15,9	16,3	15,0	15,3	15,4	15,7	16,1
	6H	17,3	17,6	17,8	18,0	18,5	17,2	17,4	17,6	17,9	18,4
	8H	18,9	19,1	19,4	19,6	20,1	18,7	18,9	19,2	19,4	19,9
Variation of the observer position for the luminaire distance S											
S = 1,0H		+0,2 / -0,1					+0,2 / -0,1				
S = 1,5H		+0,3 / -0,2					+0,2 / -0,4				
S = 2,0H		+0,4 / -0,4					+0,4 / -0,7				
Standard table		BK12					BK12				
Correction summand		2,3					2,2				
Corrected glare indices referring to 318 lm total luminous flux											

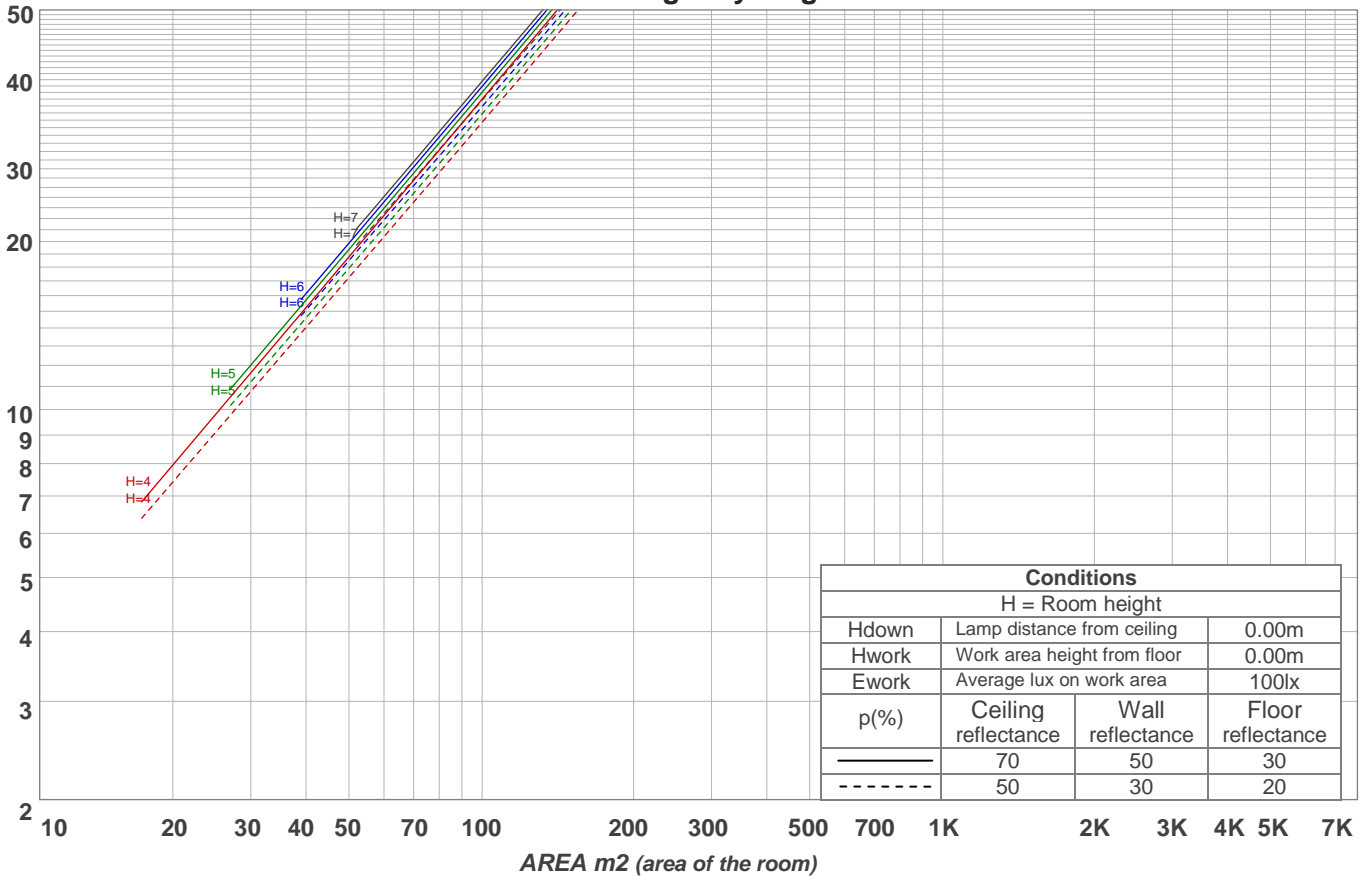
UGR data could be incorrect as lamp output is not symmetrical. Goto Edit->Photometric->Corrections and select Correct asymmetry.

Coefficients of Utilization

Ceiling reflectance	80				70				50			30			10			0
Wall reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Floor reflectance	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	0
RCR	(RCR: Room Cavity Ratio) Room Values are expressed as percentage of Lumens delivered to the task surface																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94
2	110	106	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90
3	106	101	97	94	104	100	96	93	97	94	92	95	92	90	93	91	89	88
4	103	97	93	90	102	96	93	90	94	91	89	93	90	88	91	88	87	85
5	101	94	90	87	99	94	90	87	92	89	86	90	88	85	89	87	85	83
6	98	92	88	85	97	91	87	84	90	87	84	89	86	83	88	85	83	82
7	96	90	86	83	95	89	85	83	88	85	82	87	84	82	86	83	81	80
8	94	88	84	81	93	87	84	81	86	83	81	86	83	80	85	82	80	79
9	92	86	82	80	92	86	82	80	85	82	79	84	81	79	84	81	79	78
10	91	85	81	79	90	84	81	79	84	81	78	83	80	78	83	80	78	77

LAMPS (number of lamps)

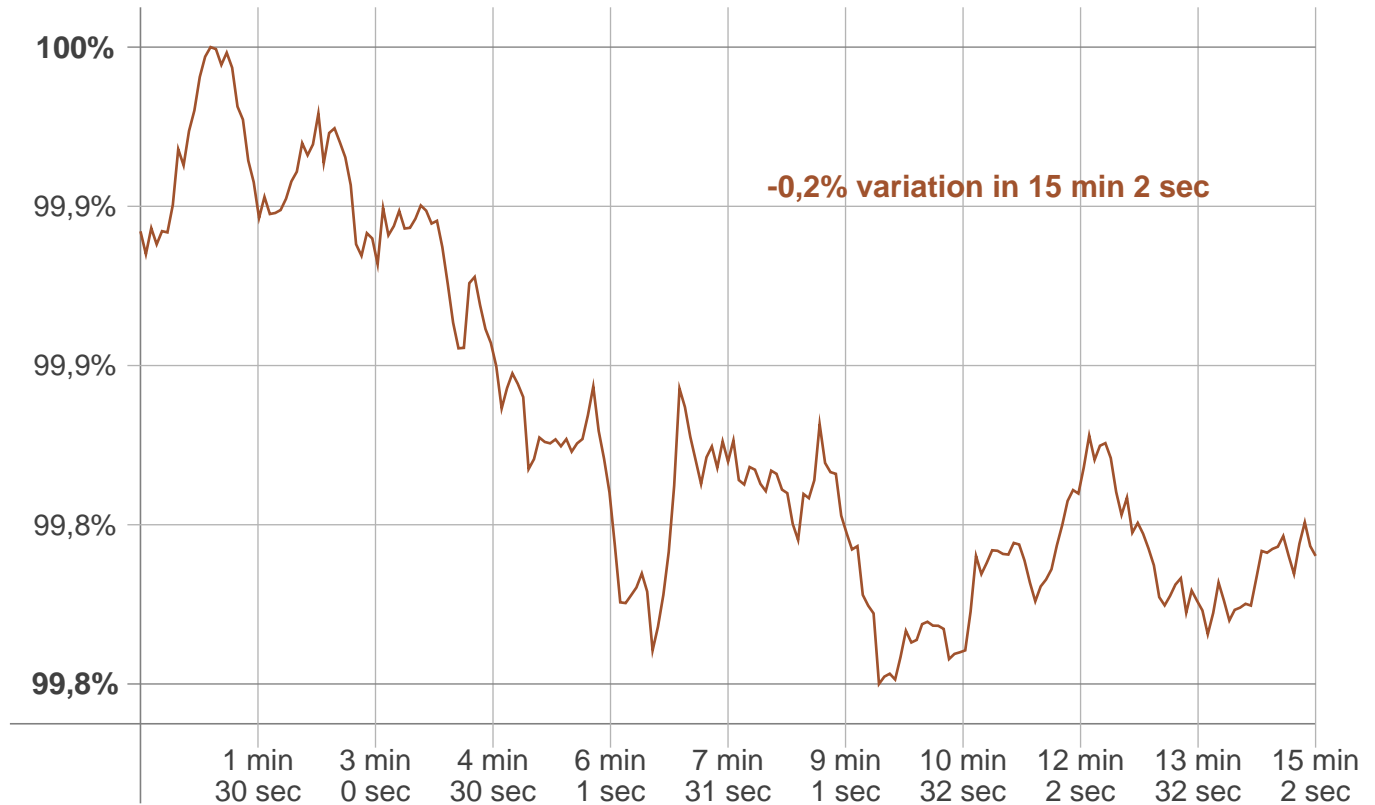
Luminaire budgetary diagram



Zonal Lumen Summary

0°-10°	10°-20°	20°-30°	30°-40°	40°-50°	50°-60°	60°-70°	70°-80°	80°-90°
{LUM0-10}	61,8 lm	18,0 lm	8,73 lm	8,07 lm	8,00 lm	7,86 lm	7,15 lm	6,48 lm
90°-100°	100°-110°	110°-120°	120°-130°	130°-140°	140°-150°	150°-160°	160°-170°	170°-180°
0,387 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm	0,000 lm

Warmup curve



Warmup result

Warmup time:	15 min 2 sec
Warmup variation	-0,2%

Warmup conditions

Stable period:	15 min
Stable change max:	2,0%
Minimum time:	15 min

Color temperature change

CCT start	CCT change	CCT end
0 K	0 K	0 K

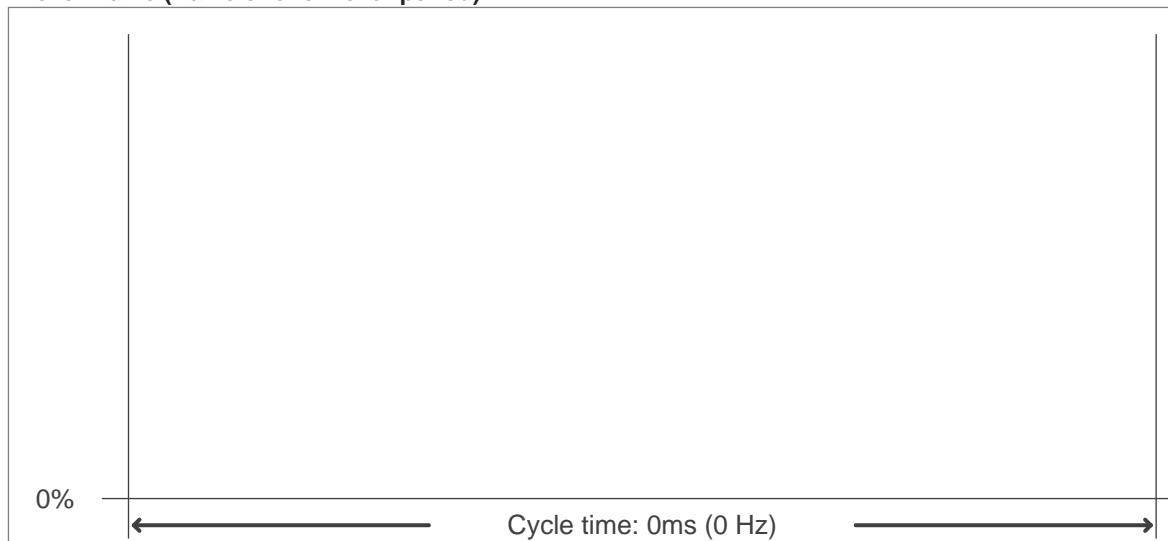
Output change

Output start	Output change	Output end
318 lm	lm	318 lm

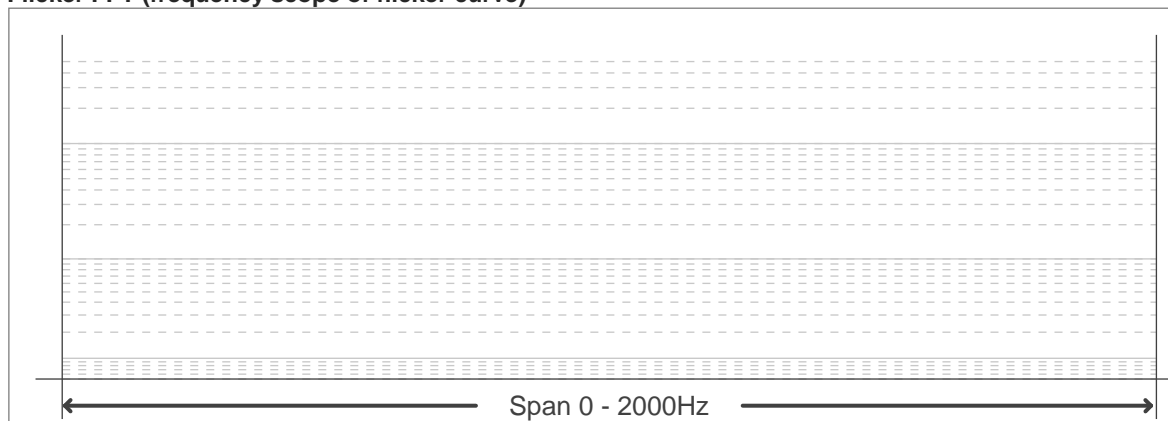
Flicker curve (complete sampled flicker signal)



Flicker frame (frame of one flicker period)



Flicker FFT (frequency scope of flicker curve)



Flicker results:

Flicker frequency:	n/a Hz
Flicker index:	n/a
Flicker percentage:	n/a %
SVM: (Visual flicker)	n/a

Flicker conditions:

Sample rate:	60.000 samples/second
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